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Patent Department  
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EXAMINER	
COOKE, COLLEEN P	
ART UNIT	PAPER NUMBER

1754

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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/799,436	<b>Applicant(s)</b> SELEZNEV ET AL.	
	<b>Examiner</b> Colleen P Cooke	<b>Art Unit</b> 1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 117-170 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 117-170 is/are rejected.
- 7) ☒ Claim(s) 133 and 168 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/28/05</u> . | 6) <input type="checkbox"/> Other: _____  |

*RL*

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 117-170 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 40-63 of copending Application No. 10/194,561. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the instant application, containing the additional limitations of heat-treating and annealing would be encompassed by and obvious over the claimed "conversion of metal oxyfluoride into the oxide superconductor" of the conflicting application. Further, the specific processing parameters and properties of the product produced would likewise be obvious as the processes entail the same steps to achieve a superconducting film having the same material components and the same  $J_c$ .

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 117, 125-132, 135-140, 141, 152-153, 156-158, 160, 163, and 168 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There appears to be no support for the following limitations, corresponding to the claims above: heat-treating above about 500°C; heat treating from about 500°C-1000°C; heat treating atmosphere including, alone or in combination, nitrogen, argon, or helium; oxygen pressure of 100mTorr; resistivity of 100-600μOhm-cm; critical current density of 0.01 MA/cm<sup>2</sup> at 77k, 1 Tesla; growth rate of 1-20 angstroms per second; film thicknes of from about 0.5-10 μm; critical current density of 0.1 MA/cm<sup>2</sup> at 77K, zero field; annealing from about 400-650°C; atmosphere including nitrous oxide, ozone or a combination of any of thes and oxygen; arrangment of first and second container with permeable structure connecting them; alkaline earth elements of Mg, Ca, Sr, or Ba taken alone or in combination; rare earth element La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb taken alone of in combination.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claims 138-140 and 166-168 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 138 and 166 recite the limitation "said alkaline earth element" in line 1. There is insufficient antecedent basis for this limitation in the claim. This renders each claim so unclear that for the purposes of further examination each will simply be treated along with the claims from which they depend.

Claims 139 and 167 recite the limitation "said rare earth element" in line 1. There is insufficient antecedent basis for this limitation in the claim. This renders each claim so unclear that for the purposes of further examination each will simply be treated along with the claims from which they depend.

Claims 140 and 168 are indefinite because, in each claim, the preamble refers to forming "(RareEarth)Ba<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub>" which comprises forming a precursor film comprising Ba, F, Y, Cu, and rare earth chosen from a selection. This is indefinite because the preamble composition does not recite the inclusion of yttrium which is clearly claimed as being part of the film according to the first step of the method.

### ***Claim Objections***

Claim 133 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 120. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim

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to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim 168 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 140. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 117-120, 125-134, 136-139, 140-146, 151-162, and 164-170 are rejected under 35 U.S.C. 102(a) as being anticipated by Solovyov et al. (“Ex-situ Post-deposition Processing for Large Area  $Y_1Ba_2Cu_3O_7$  Films and Coated Tapes”).

Solovyov et al. teaches a method wherein 1 $\mu$ m thick metal oxyfluoride YBCO precursor films (see page 2941, Column B, first full paragraph) are deposited by electron beam evaporation onto a  $SrTiO_3$  substrate in a “partial pressure reactor” which varies from 100 mTorr to 30 Torr (page 2939, Column B, first and third full paragraphs) and has an atmosphere “substantially of” water vapor and oxygen, and inert gas (p. 2939, Column B, last paragraph; p. 2940, Column A, 2<sup>nd</sup> full paragraph, line 1; p. 2941, Column B, 1<sup>st</sup> full paragraph, lines 1-2), are heated treated at

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735°C and annealed. Solovyov et al. teaches that the superconductors produced have a  $J_c$  of about 1 MA/cm<sup>2</sup> (page 2941, column B, second full paragraph). Solovyov et al. further teaches that the “partial pressure reactor” is a quartz tube (inside which the film is formed) which is enclosed in a furnace and which has a pump and cold trap to pump gases and water vapor from the quartz tube (page 2939, Column B, last and second-to-last paragraphs).

With respect to claims 128-130 and 156-158, Solovyov et al. teaches the method as described above. Although Solovyov et al. does not specify the resistivity, critical current density at 77K, 1 Tesla, or the growth rate during the heat treatment, it would appear that the film made by Solovyov et al. would inherently have the same resistivity and critical current density as the materials, processing, thickness and critical current density at 77K in zero magnetic field of the film are all the same as that which is claimed. Likewise it would appear that the process of Solovyov et al. inherently would demonstrate the same growth rate as they same materials are processed under the same processing conditions.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 135 and 163 are rejected 35 U.S.C. 103(a) as being unpatentable over Solovyov et al. (“Ex-situ Post-deposition Processing for Large Area Y<sub>1</sub>Ba<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub> Films and Coated Tapes”).

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Solovyov et al. teaches the method as described above. Solovyov et al. is silent as to the annealing temperature however, the annealing temperature is a function of the material and properties desired. It would have been obvious to anneal at the temperatures claimed because the materials are the same and further as the end product is the same and has the same properties ( $J_c$  particularly), the same processing parameters would be necessary or obvious to arrive at that product.

Claims 122-124 and 148-150 are rejected under 35 U.S.C. 103(a) as being unpatentable over Solovyov et al. ("Ex-situ Post-deposition Processing for Large Area  $Y_1Ba_2Cu_3O_7$  Films and Coated Tapes") as applied to claims 119 and 145 above, and further in view of Iijima et al. (5650378).

Solovyov et al. teaches the method as described above. Solovyov et al. teaches that the substrate is strontium titanate, and does not teach alternative substrate materials such as MgO or metals.

Iijima et al. teaches that it is known in the art to use single crystal  $SrTiO_3$  or MgO as a substrate for superconductor deposition (Column 1, lines 37-43), and further that it is more desirable in some applications to form the superconductor on a metal tape of steel, nickel, copper, silver or alloys thereof (Column 2, lines 55-63). It would have been obvious to modify the structure of Solovyov et al. by using an MgO or metal substrate because Iijima et al. teaches MgO is an alternate material to  $SrTiO_3$  for superconductor deposition and further that a metal substrate is preferred over a  $SrTiO_3$  one for certain applications.



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Claims 121 and 147 are rejected under 35 U.S.C. 103(a) as being unpatentable over Solovyov et al. ("Ex-situ Post-deposition Processing for Large Area  $Y_1Ba_2Cu_3O_7$  Films and Coated Tapes") as applied to claims 119 and 145 above, and further in view of Smith et al. (6610428).

Solovyov et al. teaches the method as described above. Solovyov et al. teaches that the substrate is strontium titanate, and does not teach alternative substrate materials such as  $CeO_2$ .

Smith et al. teaches that  $CeO_2$  may also be used as a substrate for superconductor applications (Column 8, lines 1-13). It would have been obvious to modify the structure of Solovyov et al. by using a  $CeO_2$  substrate because Smith et al. teaches  $CeO_2$  is an alternate material to  $SrTiO_3$  for superconductor deposition.


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colleen P Cooke whose telephone number is 571-272-1170. She can normally be reached Mon.-Thurs. 8am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, her supervisor, Stan Silverman can be reached at 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 3/21/05  
Colleen P Cooke  
Examiner  
Art Unit 1754